

REMARKS

Claims 1-27, 32 and 33 are pending, of which Claims 1-13, 24-27, 32 and 33 are withdrawn from consideration. Claim 14 is independent. Claims 14-23 were rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 4,842,824 to Ono (hereinafter, Ono).

Election/Restriction Requirement

In Reply to the previous Restriction Requirement, Applicants submitted to the Office on January 31, 2008 a Petition from Requirement for Restriction Under 37 C.F.R. §1.144. Submission of this Petition was referenced on page 7, lines 3-4 of that Reply. However, Applicants could not find any reference to the Petition in the Office Action upon inspection of the Office Action mailed from the Office on May 13, 2008. After checking the Patent Application Information Retrieval (PAIR) system, the undersigned observed that the Petition was categorized as an Extension of Time. After a telephone call by the undersigned to the Office of Petitions, coding of the Petition was changed to Petition for review by the Technology Center SPRE on May 27, 2008. Applicants respectfully request proper entry of the Petition from Requirement for Restriction Under 37 C.F.R. §1.144 and a decision based thereon. A copy of the Petition as filed is attached for the convenience of the Examiner.

In Applicants' Reply of January 31, 2008 responsive to the Election/Restriction Requirement dated May 7, 2007, Applicants provisionally elected with traverse Species A described with respect to FIG. 1 drawn to an optical polarizer film, and the sub-species identified as Sub-species 2, directed to a conductive light blocking material. Claims 14-23 are believed to read on the elected species and sub-species. The present Office Action rejects Claims 14-23, asserting that the claim element reciting "an intermittent surface" is not supported by the application as originally filed. For this reason the Examiner believes Claim 14 not to be generic.

However, Applicants respectfully submit that the specification as originally filed, now published in United States Patent Application Publication No. 2004-0169791, at paragraph [0074] describes that the conductive coating can be removed from the peaks. Example embodiments of the present invention provide an intermittent conductive coating 72 or material

disposed on either peaks or valleys of a subwavelength optical microstructure, such as a moth-eye structure or film 12. In the embodiments illustrated with respect to FIGS. 25-31, the intermittent material disposed on the subwavelength optical microstructure 12 blocks light from entering the microstructure 12. Claims 1, 9, 11, 13, 14, 24, and 26 were amended to include these features in an Amendment filed December 8, 2005. One skilled in the art would appreciate that, because the regular nature of the peaks and valleys, removal of the conductive coating would produce an intermittent surface covering at least a portion of the substrate and providing polarization.

The Restriction Requirement still does not comply with the Manual of Patent Examining Procedure (8th Edition, Revised August, 2006; “the MPEP”) for reasons set forth in Applicants’ Replies filed February 8, 2007 and January 31, 2008. The Examiner’s continual placement of the burden of proof on Applicants to traverse the Requirement is unfounded without first properly setting out a Restriction Requirement in compliance with the MPEP. Restriction Requirements are made properly when groups of claims to inventions are found to be either independent or distinct. See MPEP § 806. The Examiner must point out the reasons why such claim species are considered either independent or distinct. Every requirement to restrict has two aspects: (A) the reasons (as distinguished from the mere statement of conclusion) why each invention as claimed is either independent or distinct from the others; and (B) the reasons why there would be a serious burden on the Examiner if restriction is not required (i.e., the reasons for insisting upon restriction therebetween as set forth in the following sections). A mere statement of conclusion is inadequate. See MPEP § 808.

Further, it should be noted that the features described in the claims of Species A-F have been examined by the Office together in the three prior substantive Office Actions issued in this case. In particular, the Office mailed a Restriction Requirement dated February 10, 2005, an Action dated June 8, 2005, and a Final Action dated March 13, 2006. In each of the previous substantive Actions, the Office examined the claims of Species A-F together. There clearly would be no additional or unusual burden on the Examiner to continue examination as it has been conducted so far in this case.

Double Patenting

The Examiner previously objected to Claims 16 and 23 as being substantial duplicates. Applicants thank the Examiner for withdrawal of the objection of Claims 16 and 23 based on Applicants indication that, although Claims 16 and 23 recite similar limitations, they depend from Claims 15 and 14, respectively, with Claim 16 narrower than Claim 23 as including the additional limitation recited in Claim 15.

Claim Rejections Under 35 U.S.C. §112

Claims 14-23 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant respectfully traverses the rejection of Claims 14-23 on this basis and requests reconsideration and allowance of all claims. Example embodiments of the present invention provide an intermittent conductive coating 72 or material disposed on either peaks or valleys of a subwavelength optical microstructure, such as a moth-eye structure or film 12. In the embodiments illustrated with respect to FIGS. 25-31, the intermittent material disposed on the subwavelength optical microstructure 12 blocks light from entering the microstructure 12. Claims 1, 9, 11, 13, 14, 24, and 26 were amended to include these features in the Amendment filed December 8, 2005.

Claim Rejections Under 35 U.S.C. §102

Without limitation to the claims, the present invention provides a subwavelength moth-eye structure formed on a substrate. As provided in the specification, moth-eye structures are explained in more detail in U.S. Application No. 09/438,912, now issued as U.S. Patent 6,356,389 on March 12, 2002, commonly assigned with the present application to Reflexite Corporation, the teachings of which were incorporated in their entirety in the application filed December 4, 2003.

Claims 14-23 were rejected under 35 U.S.C. §102(b) as being anticipated by Ono. Ono is directed to an optical storage medium. The Background section of Ono describes two prior art optical storage media, the first of which employs a moth-eye surface. Ono continues to describe this prior art optical storage medium, with respect to FIGS. 1A-1C, as having a plastic substrate

10 having a very fine array of protuberances 1 thereon, and a metal layer 11 provided on the protuberance 1.

Following the discussion of this prior art optical storage medium, Ono continues at FIG. 2 to describe example embodiments is the claimed optical storage medium. As illustrated in FIG. 2, example embodiments of the optical storage medium described in Ono comprise a thermoplastic resin substrate 20 on which tracking grooves 21 and recording lands 22 are provided. A concave and convex surface grating 23 is provided on the thermoplastic resin substrate 20, and a thin metal layer 24 covers the concave and convex surface grating 23. Recording pits 25 are formed on the recording lands 22 to eliminate the concave and convex surface grating 23 locally. The concave and convex surface grating 23 includes a plurality of grating grooves which are parallel to each other and have a period of 0.3 μm , less than a wavelength of light.

However, Ono fails to anticipate the claimed invention. In order to anticipate a claim, a prior art reference must teach each and every element of the claim. With regard to independent Claim 14, Ono, as cited by the Examiner, at least fails to teach a sub-wavelength moth-eye structure and a conductive light-blocking material disposed in at least some of the valleys.

First, Ono fails to teach a sub-wavelength moth-eye structure. As discussed above, Ono does provide a description of an optical storage medium utilizing a moth-eye structure and an optical storage medium utilizing a subwavelength concave and convex surface grating 23. However, Ono never describes a sub-wavelength moth-eye structure. Further, Ono teaches away from such an optical storage medium in describing that, with regard to the prior art medium, "it is rather difficult to provide a very fine array of the protuberances...on the plastic substrate which are smaller in the diameter than a wavelength of light" (col. 1, lines 64-67) (emphasis added) (i.e., a sub-wavelength moth-eye structure).

Ono's description of a sub-wavelength structure is made only with reference to FIG. 2 in describing an example optical storage medium and is not made when describing the prior art. As illustrated in Ono and discussed above, the claimed optical storage medium does not utilize a moth-eye structure. As described in paragraph [0042] of Applicants' published application now pending before the Office, a moth-eye anti-reflection surface is one in which the reflection of light is reduced by the presence of a regular array of small protuberances covering the surface.

The spacing of the protuberances is less than the wavelength of light for which anti-reflection is sought. However, the surface grating 23 illustrated in FIG. 2 of Ono does not have a regular array of small protuberances. Rather, as described in Ono, it is a concave and convex surface grating 23. Moreover, this surface grating 23 is interrupted by tracking grooves 21 and recording lands 22, with recording pits 25 formed on the recording lands 22. Therefore, this surface grating is not a moth-eye structure as in the claims.

Second, Ono fails to teach a conductive light-blocking material. In making the rejection of this claim element, the Examiner points to reference numeral 1 of Ono as a conductive light-blocking material. However, reference numeral 1 in Ono refers to the protuberances of the prior art moth-eye structure illustrated in FIGS. 1B-1C. Applicants believe the Examiner intended to refer to the metal layer 11. Regardless, neither the protuberances 1 nor the metal layer 11 is a conductive light-blocking material providing polarization. Ono never describes the metal layer as light-blocking. Rather, Ono describes the metal layer as absorptive, specifically that “the metal layer 24 absorbs the laser beam and is heated up to the melting temperature of the substrate 20 so that the concave and convex surface grating 23 collapses locally to produce a recording pit 25” (col. 4, lines 16-20). Therefore, Ono fails to teach a light-blocking surface.

Moreover, the concave and convex surface grating 23 described in Ono acts as a diffraction grating. As described in paragraph [0042] of Applicants’ published application now pending before the Office, it is important that the spacing P between the peaks of the protuberances on the moth-eye surface is sufficiently small that the array cannot be resolved by incident light. If this is not the case, the array can act as a diffraction grating and, although there may well be a reduction in the specular reflection, the light is simply redistributed into the diffracted orders. In other words, P is less than $\lambda/2$ for oblique incidence if for reflection only, and that d is less than $\lambda/2n$ in the case of transmission where diffraction inside the material is suppressed. However, optical recording media similar to that described in Ono, such as Compact Discs (CDs) and Digital Versatile Discs (DVDs), are examples of similar diffraction gratings. Effects provided by the diffraction gratings can be demonstrated by reflecting sunlight off them. Because the incident light is daylight, a full spectrum will be seen. This is caused by the thin layer of metal provided in the grooves on the disc. A similar arrangement of grooves and a metal layer is provided in the optical storage medium described in Ono.

With regard to Claims 15, 17 and 18, Ono fails to teach the claimed elements. Ono makes no mention of the conductive light-blocking material including a plurality of conductive particles, let alone the plurality of conductive particles including nanoparticles or particles about 0.2 micrometers or smaller in size. Further, these claims are directly or indirectly dependent on Claim 14 and therefore contain the elements of the base claim. For these reasons, the Examiner's rejection of Claims 15-19 are overcome and reconsideration is respectfully requested.

With regard to Claims 19, 21 and 22, Ono fails to teach the claimed elements. Although Ono describes that "the metal layer 24 is of a material which is selected from such metals as gold, platinum, aluminum, chromium etc." (col. 3, lines 44-45), the metal layer 24 is "a thin metal layer 24 cover[ing] the concave and convex surface grating" (col. 3, lines 32-33). As discussed above, Ono makes no mention the conductive light-blocking material including a plurality of conductive particles. It then stands that, although Ono recites that the metal layer 24 may be comprised of these metals, Ono makes no mention of them being particulate. Also, Ono mentions neither conductive filler nor conductive fibers. Further, these claims are directly or indirectly dependent on Claim 14 and therefore contain the elements of the base claim. For these reasons, the Examiner's rejection of Claims 19, 21 and 22 is overcome and reconsideration is respectfully requested.

With regard to Claims 16 and 23, Ono fails to teach a substantially transparent coating disposed on the polarizer film. In making the rejection, the Examiner points to the metal layer 24 covering the concave and convex surface grating. However, the Examiner fails to indicate how the metal layer 24 is substantially transparent. Further, Claims 16 and 23 are respectively indirectly and directly dependent on Claim 14 and therefore contains the elements of the base claim. For these reasons, the Examiner's rejection of Claims 16 and 23 is overcome and reconsideration is respectfully requested.

With regard to Claim 20, the Examiner is mistaken that the magnetic device limits the positioning of the optical polarizer film. Rather, Claim 20, which is dependent on Claim 15 claiming a plurality of conductive particles included in the conductive light-blocking material, recites that "a magnetic device is used to position the conductive particles in at least some of the valleys" (emphasis added). Ono fails to teach this claim element. Further, Claim 20 is indirectly

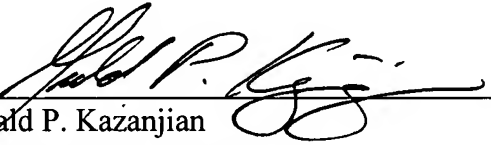
dependent on Claim 14 and therefore contains the elements of the base claim. For these reasons, the Examiner's rejection of Claim 20 is overcome and reconsideration is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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